

REMARKS

Claims 1, 3-13 are pending in the present application after the amendments. Claims 8-13 are withdrawn from consideration. Claims 1, 3 and 4 are herein amended. Claim 2 is herein cancelled. No new matter has been entered.

Rejections under 35 USC §112, Second Paragraph

Claims 2 and 3 were rejected under 35 USC §112, second paragraph, as being indefinite because the term “oxygen concentration” is allegedly a relative term which renders the claim indefinite.

However, the specification defines the term “oxygen concentration” at page 6, lines 12-15 that “the oxygen concentration denotes oxygen atoms on a weight percentage basis (wt%) (weight content) contained in polysaccharide-based raw materials measured by elemental analysis.”

Where an explicit definition is provided by the applicant for a term, the definition will control interpretation of the term as it is used in the claim. *Toro Co. v. White Consolidated Industries Inc.*, 199 F.3d 1295, 1301, 53 USPQ2d 1065, 1069 (Fed. Cir. 1999) (meaning of words used in a claim is not construed in a "lexicographic vacuum, but in the context of the specification and drawings").

Accordingly, claims 2 and 3 are not indefinite because of the term “oxygen concentration.”

Rejections under 35 USC §103(a)

Claims 1-7 were rejected under 35 USC §103(a) as being unpatentable over JP'689 (Japanese Patent Application Publication JP 2002-173689) in view of Hirahara et al., (U.S. Patent Application Publication US 2002/0114126).

Claim 1 has been amended to recite among other things, “hydrocarbon material, which is prepared by heat-treating a polysaccharide-based raw material having an oxygen concentration ranging from 34.6% to 45% with a thermal reaction auxiliary under an inert gas atmosphere.”

Thus, present claim 1 is directed to “hydrocarbon material” made from “polysaccharide-based raw material having an oxygen concentration ranging from 34.6% to 45%” while JP'689 recites “polycyclic aromatic hydrocarbon material” made from raw material such as coal tar pitch or oil pitch. The present invention is based on a discovery that an electrode with remarkably increased specific capacitance per unit volume can be prepared by limiting the oxygen concentration of the polysaccharide-based raw material within the range of 34. 6% to 45%, and heat treating the hydrocarbon material.

Table 1 (present specification, page 20)

	Examples					Comparative Examples		
	1	2	3	4	5	1	2	3
Oxygen concentration (%)	34.6	40.0	38.0	45.0	42.0	24.0	-	-
Amount of zinc chloride (parts by weight)	50	150	50	70	100	150	300	300
H/C ratio	0.23	0.24	0.41	0.10	0.20	0.15	0.22	0.27
Specific surface area (m ² /g)	800	1990	900	1200	1600	1500	1640	1810
Total pore volume (ml/g)	0.64	0.90	0.55	0.75	1.25	0.88	0.66	0.81
Mesopore volume (ml/g)	0.04	0.15	0.10	0.13	1.20	0.38	0.10	0.28
Specific capacitance per unit volume of the electrode (F/cc)	27.0	25.2	26.0	25.5	25.2	15.2	22.0	20.0
Specific capacitance per unit weight of the electrode (F/g)	36.0	36.0	36.1	37.0	33.3	26.7	40.0	40.0
Bulk density of the electrode (g/cc)	0.75	0.70	0.72	0.69	0.75	0.57	0.55	0.50

As is clear from Table 1 shown above, when the oxygen concentration of the polysaccharide-based raw material falls within the range of 34.6% to 45% (Examples 1 to 5), the specific capacitance per unit volume of the electrode is 25.2-27 F/cc, and the specific capacitance per unit weight of the electrode is 33.3-37.0 F/g. In contrast, when the oxygen concentration of the polysaccharide-based raw material is 24.0% (Comparative Example 1), the specific capacitance per unit volume of the electrode is 15.2 F/cc, and the specific capacitance per unit

weight of the electrode is 26.7 F/g. These results indicate that the specific capacitance of the electrode is significantly lowered in the latter case.

JP'689 does not disclose the oxygen concentration of the polysaccharide-based raw material. Although JP'689 mentions the oxygen concentration of pitch of "20 wt% or more" and "24-32 wt%," it does not disclose the specific range of 34.6% to 45% as recited in claim 1.

Hirahara is silent about the specific range of oxygen concentration of the polysaccharide-based raw material, and about any remarkable increase in the specific capacitance of the electrode achieved by heat treating a polysaccharide-based raw material having the oxygen concentration within a specific range.

Furthermore, the carbon material (activated carbon) disclosed in Hirahara is obtained by subjecting coconut shell char to activation under an atmosphere containing steam (paragraph [0027] of Hirahara). Accordingly, the carbon material of Hirahara is fundamentally different from the hydrocarbon material of the present invention, which is prepared by heat treating a polysaccharide-based raw material having a specific range of oxygen concentration together with a thermal reaction auxiliary under an inert gas atmosphere.

For at least these reasons, claim 1 patentably distinguishes over JP'689 and Hirahara et al., Claims 3-7, directly or indirectly depending from claim 1, also patentably distinguish over JP'689 and Hirahara et al. for at least the same reasons.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

Application No.: 10/569,230
Art Unit: 1623

Amendment under 37 CFR §1.111
Attorney Docket No.: 062137

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

A handwritten signature in black ink, appearing to read "Sadao Kinashi", with a stylized flourish at the end.

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